

SAS Superstructure

Location: 04-SF-80-13.2 / 13.9 Client Name: CalTrans

Daily Diary Report by Bid Item

Contract No.: 04-0120F4

Diary #: 547 Const Calendar Day: 941 Date: 06-Apr-2012 Friday
Inspector Name: Bruce, Matt Title: Transportation Engineer

Inspection Type: Intermittent

Shift Hours: 03:30 am 12:00 pm Break: 00:30 Over Time:

Federal ID: Location:

Reviewer: Schmitt, Alex Approved Date: Status: Submit

Weather

Temperature 7 AM 40 - 50 **12 PM** 50 - 60 **4PM** 50 - 60

Precipitation 0.00" Condition Overcast to partly cloudy

Working Day If no, explain:

Diary:

Work description.

- John Lyons, Sami Dauok, Alex Schmitt, Phil Latasa, and myself checked the out to out distance for the cable strands today as John's and my measurements are tabulated below. John and I were responsible for both the north/south sidespans and west-loops. John assisted me with the measurements and tabulating the data as I took all of the measurements unless otherwise noted. I used the Victor Tree Gauge (#2) to take the out to out measurements of the cable strands. Sami and Phil were responsible for checking the north/south mainspans today.

All measurements by both crews were reported to Alex who was stationed in the Caltrans conex recording and analyzing the data. When all of the measurements were completed, Alex was responsible for reviewing the measurements with ABF engineer Zach Lauria. See Alex's diary for more details related to the acceptance or rejection of cable strand sag adjustment.

The digital thermometer was used to measure both the ambient and steel temperatures. The green dual thermometer and anemometer was used to check the ambient temperature and wind speed. The steel temperature measurements were taken with the digital thermometer placed on the outer cable strand wires. Wind speeds were also obtained from weather.com at the time of the measurements.

The official sunrise time per weather.com for San Francisco today was at 6:47am. The following measurements were taken of the relative sag from cable strand number 1 at the given times below:

// South Sidespan //

Time = 4:25am

Ambient Temperature = 45.4F

Condition = Clear

Wind = Calm

ABF Surveyor(s) = James Allen and Ken Woon

Caltrans Engineer(s) = Matt Bruce and John Lyons

	able Strand	Steel Temperature (F)	O-O (#2) C1 / ABF (mm)	Theor (mm)	C1 Delta
(1	mm) 1	45.1	Baseline or Zero	78	0
	130	N/A	943 (-61) = 882 / N/A	894	-
1		14// (340 (01) = 302 / 14// (004	
	135	45.2	882 + 70 = 952 / 966	894	+ 58
	135*	45.2	945 (-61) = 884 / 893	894	- 10
	136	45.1	828, 831- Ave = 830 (-61) = 769 / 77	79 761	+ 8



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Run date 21-Nov-14

04-0120F4

04-SF-80-13.2/13.9

Self-Anchored

Suspension Bridge

Time 11:23 PM

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136*	45.1	833 (-6	1) = 772 / 776	761	+ 11	
136*	45.1	827 (-6	1) = 766 / 774	761	+ 5	
137	45.4	836 (-6	1) = 775 / 788	828	- 53	
137*	45.4	894 (-6	1) = 833 / 835	828	+ 5	

Comments: All cable strands were considered to be free-hanging at the time of measurement on the south sidespan. I took all of the measurements while John assisted me with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in () millimeters. Cable strand number 135 was higher than the Victor Tree gauge (#2) scale therefore a torpedo level, a target on 130, and a stick tape was used to measure up 70mm between the two strands.

Immediately after preliminary measurements were taken on the cable strands on the south sidespan ABF began "Live-Adjustment". Once the cable strand was adjusted ABF surveyors would take a measurement followed by Caltrans engineers. Numbers amongst the two groups were compared to expedite final buyoff. Cable strand numbers with an * next to it denote that the cable strand was measured after "Live-Adjustment". It should be noted that ABF used Caltrans preliminary numbers for adjusting the cable strands at the tower saddle.

The following is a summary of the cable strand release at the tower inspected by Daryoush Bahar where the calculated numbers were based off of my measurements:

CS#	Calc. Req Length at Tower (mm)	Meas. Length at Tower (mm)	Meas. Sag at Midspan (mm)
135	6.44-West	8-West	7.56-West
136	0.89-West	3-West	0.33-West
137	5.89-East	6-East	6.44-East

This table is a cross check using the theoretical sag ratio on the side spans of 1:9 to confirm measurements at the midspan.

// North Sidespan //
Time = 6:20am
Ambient Temperature = 43.6F
Condition = Clear
Wind = W @ 2mph

ABF Surveyor(s) = James Allen and Ken Woon Caltrans Engineer(s) = Matt Bruce and John Lyons

Cable Strand (mm)	Steel Temperature (F)	O-O (#2) CT / ABF (mm)	Theor (mm)	CT Delta
1	44.6/44.8	Baseline or Zero	78	0
135	43.2	933 + 10 (-61) = 882 / N/A	900	- 18
135	43.2	945 + 10 (-61) = 894 / 898	900	- 6
136	43.1	828 (-61) = 767 / 772	773	- 6
137	44.5	863 (-61) = 802 / 794	838	- 36
137	44.5	879 (-61) = 818 / 825	838	- 20
137	44.5	904 (-61) = 843 / 842	838	+ 5

Comments: All cable strands were considered to be free-hanging at the time of measurement on the north sidespan. I took all of the measurements while John assisted me with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in () millimeters. Cable strand 137 was initially floated overhead at the time of measurements. However the tower saddle ironworkers positioned the strand into the cable strand bundle and adjusted the strand. This took awhile but the steel temperatures remained acceptable even though the strand was measured after sunrise. This is the reason for two steel temperatures listed for cable strand number 1. Cable strand number 135 was higher than the Victor Tree gauge (#2) scale, and the 10mm



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increment on the target were read to obtain the measurement.

All measurements taken on the north sidespan above were done under "Live-Adjustment". Once the cable strand was adjusted ABF surveyors would take a measurement followed by Caltrans engineers. Numbers amongst the two groups were compared to expedite final buy-off.

The following is a summary of the cable strand release at the tower inspected by Daryoush Bahar:

CS#	Calc. Req Length at Tower (mm)	Meas. Length at Tower (mm)	Meas. Sag at Midspan (mm)
135	N/A	14-West, 13-West	N/A
136	N/A	15-West	N/A
137	N/A	8-East, 13-East, 14-East	N/A

- At 7:23am myself and John proceeded to measure cable strands 136 to 137 at the west-loop. John took all of the measurements at the west-loop and recorded all of the data, see his diary for more details and comments. All of the prescribed measurements for the sidespans and west-loop were completed at or around 7:50am and conveyed to Alex. As mentioned in the comments section of the measurement tabulations, live adjustments were performed by ABF ironworkers. An adjustment would be made and then ABF surveyors and Caltrans engineers would measure the cable strand to verify the correct sag adjustment was done before moving on to adjusting another strand.

The east anchorage and tower saddle ironworkers started at 5:00am today. See Daryoush Bahar's diary for comments, measurements, labor, and equipment at the tower saddle. See Bob Brignano's diary for comments, measurements, labor, and equipment at the east anchorage.

- Continued to review the plans and submittals related to the cable bands. Continued to develop the inspection checklist for this item of work.
- Wrote outstanding diaries and completed cable strand adjustment check sheets.